Fact Sheet, May 2008

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

The mission of the Department of Toxic Substances Control is to provide the highest level of safety, and to protect public health and the environment from toxic harm.

State of California

Cal/EPA

STRINGFELLOW SUPERFUND SITE PROJECT UPDATE

(para informacion en Espanol, llame a Jesus Cruz, al (800) 495-5651)

The Department of Toxic Substances Control (DTSC) is sending this fact sheet to update you on the cleanup of the Stringfellow Superfund Site in Glen Avon. The DTSC is the lead state agency conducting actions to protect human health and the environment from hazardous wastes left behind at the site.

This fact sheet provides the following:

- A brief summary of the history of the Stringfellow Superfund Site
- An overview of what steps have already been taken to stabilize and control site contamination
- Details of the Supplemental Feasibility Study (SFS) as well as future steps to be taken to implement a final cleanup plan (Page 2, right column)
- Information regarding other site activities including the Remedial Investigation and Feasibility Study (RI/FS) for perchlorate in groundwater in Zone 4 (the community)
- Information on the Zone 4 Feasibility Study, which addresses remedial alternatives for perchlorate in the downgradient community area (Page 3, bottom left column)
- Information on a Health Risk Assessment (HRA) developed to protect the community
- Information on the development of a new groundwater treatment plant

Opportunities for Public Participation

You can attend Community Meetings of the Stringfellow SAC

The Stringfellow Advisory Committee (SAC) is a group of dedicated people who meet regularly to exchange information and discuss the issues surrounding developing a workable long-term solution for the Stringfellow Site. The SAC meetings are usually held once every two months, on the 3rd Wednesday of the month at the Stringfellow Information Center located at 9415 Mission Boulevard, Suite D, in Glen Avon. For more information call:

For Information about Technical Issues, call:

Roger Paulson DTSC Project Manager (916) 255-6518

E mail RPaulson@dtsc.ca.gov

History and Background

The Stringfellow Superfund Site (site) was a hazardous waste disposal site located in Pyrite Canyon, north of Highway 60. The waste disposal site operated from 1956 to 1972 and over that time received about 35 million gallons of hazardous waste. In the early 1980s, the Regional Water Quality Control Board - Santa Ana Region drained the ponds and capped the Site. Since 1986, the United States Environmental Protection Agency (USEPA) and the DTSC have installed hundreds of groundwater monitoring and extraction wells and several treatment plants to contain and remediate contaminated groundwater that is migrating from the Site.

In the early 1990s the DTSC installed a series of groundwater extraction wells in the trichloroethylene (TCE) plume south of Highway 60. As a result of these wells, the area of TCE contaminated groundwater south of the highway has been significantly reduced with only a few isolated areas that exceed 5 parts per billion (ppb), the maximum contaminant level allowed in drinking water. The Figure on Page 7 of this Fact Sheet shows the outline of the original TCE plume overlain by the smaller lateral extent of the current 2007 TCE plume. TCE concentrations in key wells have also decreased over time indicating that TCE mass is being removed as shown on the Figure.

In 2001, perchlorate was detected in groundwater south of Highway 60. Immediately upon finding the perchlorate in ground water, residents not already connected to the Jurupa Community Services District (JCSD) water service were provided with bottled water and the DTSC contracted to install mains, laterals, meters, and hookups at each residence. The DTSC is conducting an RI/FS to determine the extent of perchlorate contamination in groundwater in the community area (Zone 4) and to select a remedial (cleanup) strategy. In October of 2007, the State of California's Department of Health Services established a Maximum Contaminant Level (MCL) of 6 ppb for perchlorate in groundwater.

Controlling and Stabilizing Contamination from the Site in Five Stages:

- The first stage involves several initial actions, which occurred between 1980 and 1984 and involved closing the former waste disposal area
- The next four stages involve four long-term remedial measures, which include pumping contaminated groundwater and treating it at the Mid-Canyon Pre-treatment Plant
- Controlling the source of contamination
- Cleanup of groundwater in the lower canyon area
- Cleanup of groundwater in the community

As mentioned in the background section above, the remedial measures have resulted in a substantial reduction of TCE contamination in groundwater in the community.

The figure at the end of the fact sheet shows the approximate areas of past TCE contamination and the conditions as they exist today. The declining concentrations over time are also shown on the figure for wells in four representative areas.

Similar to TCE, the operation of the groundwater treatment system has resulted in a reduction of perchlorate. Since the discovery of perchlorate in 2001, concentrations of perchlorate in groundwater have dropped by 30% to 50% throughout much of the area being monitored.

Draft Final Supplemental Feasibility Study (SFS)

In December of 2007, a document called the "Draft Final Supplemental Feasibility Study" (2007 Draft Final SFS) was submitted to address the cleanup of the Stringfellow Hazardous Waste Site. The 2007 Draft Final SFS is a revised version of an earlier Draft SFS released in May 2000, which in turn was based on the initial feasibility study released in 1988. Revisions to the 2000 Draft SFS were required in order to address new contaminants discovered at the Site in 2001. These new contaminants include 1,4-dioxane, perchlorate, and n-nitrosodimethylamine (NDMA). The development of the revised Draft

Final SFS was delayed until 2007 in order to address potential exposure to the new contaminants via the use of domestic groundwater wells and to conduct a screening level ecological risk assessment (SLERA) to evaluate potential ecological impacts.

The primary purpose of the 2007 Draft Final SFS is to identify and evaluate the final remedial alternatives for cleanup of the Stringfellow Site. After the SFS is finalized, it will be used by the USEPA to select a remedial strategy for the Site and to prepare a Final Record of Decision (ROD). The remedial actions that have already been implemented under the existing four RODs have been designed to stop ongoing releases of contamination from the Site in air, surface water, and groundwater. The major components of the remedial actions implemented to date include a cap over the waste disposal area, rainfall runoff control channels, and groundwater extraction and treatment systems located in Zones 1, 2, 3, and 4. The SFS addresses the question of what additional remedial actions, if any, are needed at the Stringfellow Site in order to continue protecting human health and the environment.

In order to answer this question, the Draft Final SFS identifies, evaluates, and screens remedial technologies that could be used to address the contamination present at the Stringfellow Site. Proven technologies as well as emerging technologies were considered for the identified contaminants (including perchlorate) for Zones 1, 2, and 3. The evaluation of remedial alternatives to address perchlorate in Zone 4 is being conducted as part of a separate Zone 4 perchlorate RI/FS. Remedial technologies that passed a two-phased screening process in the SFS were then combined into seven (7) candidate Remedial Alternatives. These Remedial Alternatives included a No Further Action alternative, and a set of alternatives that included either a natural soil cap or an impermeable cap in Zone 1 combined with one of the following three options: Zone 1 dewatering, Zone 1 soil flushing, or enhanced containment of groundwater in Zone 1B.

Implementing a Final Cleanup Plan for the Stringfellow Site: Remedial Investigation and Feasibility Study for Perchlorate in Groundwater in Zone 4

Since 2001, the DTSC has been conducting investigations of perchlorate in groundwater between Highway 60 and the Santa Ana River. Perchlorate is a salt, and in synthetic form is present most commonly as ammonium perchlorate, which is used in solid fuel rockets, matches, and other applications. It is used because it provides the oxygen that the rocket or match needs to burn. When any perchlorate salt, such as ammonium perchlorate is dissolved in groundwater, the perchlorate is freed from ammonium and perchlorate moves freely with the water. Perchlorate affects human health by interfering with iodide uptake into the thyroid gland. In adults, the thyroid gland helps regulate the metabolism by releasing hormones, while in children, the thyroid helps in proper development.

Unlike the other contaminants from the Site (trichloroethylene and chloroform), perchlorate does not become vapor when exposed to the air. Consequently, there are no health hazards associated with vapor migration and intrusion into indoor air or buildings.

As described above, the existing treatment remedies put in place to treat the TCE plume are also reducing the concentrations of perchlorate in groundwater in the area as far south as the community wellhead treatment system.

In 2005, 117 groundwater samples were collected at 70 locations south of the community wellhead treatment system and to the east and west of the Sites' existing monitoring well network.

Based on the results of the investigation work, 60 small diameter monitoring wells were installed at 28 locations. The new wells are intended to yield more data in the eastern, western, and southern extents of the plume, and have been added to the Site's groundwater monitoring program (please see diagram on page 6).

Analyses of the direction of groundwater flow and occurrence of perchlorate indicate that there is a plume of perchlorate that is coming from

Pyrite Canyon. Adjacent to the plume, perchlorate concentrations ranging from 1 ppb to 12 ppb are widespread in the area but show no apparent pattern and appear to be unrelated to the plume. These low concentrations appear to be related to the historical application of perchlorate-bearing Chilean nitrate fertilizer for agriculture in the area, where more than 90% of the land has historically been used for agriculture. Special groundwater samples are in the process of being analyzed to evaluate the presence of perchlorate from fertilizers.

The direction of the perchlorate plume changes as it approaches the Santa Ana River. Results from a six month study of the interaction of groundwater and the Santa Ana River indicate that perchlorate contamination from the Stringfellow Site does not enter the Santa Ana River; instead, a portion of the plume is degraded naturally into harmless constituents, and a portion of the plume joins the much larger western regional groundwater flow. As groundwater in the plume flows to the west of the San Sevaine Channel and Bain Street, concentrations of perchlorate in groundwater fall to below the 6 ppb MCL. The Draft Remedial Investigation will be reviewed by Stakeholders in Summer 2008.

Work on the Feasibility Study is ongoing. The preliminary screening of remedial alternatives to select technologies appropriate for perchlorate in groundwater has been submitted or stakeholder review. The process to select a remedial alternative will take into account contaminant mass and distribution information developed in the Remedial Investigation, risks to human health developed in the Health Risk Assessment, and physical and chemical treatment processes selected in the Feasibility Study screening process. The Draft Feasibility Study is scheduled to be submitted for stakeholder review in December 2008. The final remedial alternative will be recommended in a proposed plan that will be submitted for public review and comment in summer 2009. After consideration of public comments on the proposed plan, a record of decision (ROD) will be prepared and issued by the USEPA. The draft ROD is anticipated to be completed by December 2009.

Health Risk Assessment

A Draft Health Risk Assessment was submitted to Stringfellow Site stakeholders on May 13, 2008 for review. The Draft Health Risk Assessment characterizes and evaluates the public health concerns associated with perchlorate and other constituents of concern in groundwater underlying the community.

The Draft Health Risk Assessment concludes that if groundwater from Zone 4 is the only source of drinking water, exposure to perchlorate may exceed regulatory guidelines in children, nursing infants and tree-and-plant nursery workers. This is unlikely since residents of Zone 4 do not use water from Zone 4, as a source of drinking water.

New Pre-Treatment Plant

The existing Pre-Treatment Plant (PTP) became operational in 1985. It was designed as an interim facility with a projected lifetime of 5 years. The PTP continues to be operational; however, it requires a significant expenditure of funds and effort to repair and replace aging components and to keep it operating within its permit limits. Furthermore, since the PTP was designed and installed, new contaminants have been identified, requiring more advanced treatment. Unfortunately, the existing PTP was designed and built with minimal control features and little or no room for expansion or upgrading; therefore, the existing PTP cannot be reconstructed or upgraded in a cost-effective manner. Thus, the State is planning to replace the existing Stringfellow PTP with a more efficient, cost-effective, and up-to-date New Pre-Treatment Plant (NPTP).

The major steps of the transition of operations from the PTP to the NPTP are the purchase of real property adjacent to the PTP, the bench and pilot scale testing of promising treatment technologies, the design and construction of the NPTP, the startup and testing of the NPTP, and finally the decommissioning of the PTP. The NPTP is scheduled to be constructed and operational by early 2013.

Copies of important Site documents including the Stringfellow Draft Final Supplemental Feasibility Study (SFS) and the Draft Health Risk Assessment (HRA) are located in the following information repositories:

Electronic versions of many important Site documents are available in the DTSC's EnviroStor document library located at:

Documents under public review:
http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=33490001&cmd=community_involvement

Completed documents:

http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=33490001

Glen Avon Public Library
4810 Pedley Road
Riverside, CA 92509
(951) 685-8122

Riverside Public Library
3581 7th Street
Riverside, CA 92501
(951) 685-8122

For More Information

- For information about Public Participation call Jesus Cruz (800) 495-5651 or email: JCruz@dtsc.ca.gov
- For Information about Technical Issues, call Roger Paulson DTSC Project Manager (916) 255-6518, or Email: RPaulson@dtsc.ca.gov
- For Media questions call Jeanne Garcia DTSC Public Information Officer (818) 717-6573, or email: JGarcia1@dtsc.ca.gov
- If you would like to leave a message on the local Stringfellow hotline, please call (951) 782-4267, and a DTSC staff member will get back to you.

Notice to the hearing impaired

You can obtain additional information using the California Sate Relay Service at (888) 877-5378 (TDD). Ask them to contact Jesus Cruz at (916) 255-3315 regarding the Stringfellow Superfund Site.

Anuncio

Si prefiere hablar con alguien en español acerca de esta información, favor de llamar a Jesus Cruz, Departamento de Control de Substancias Toxicas. El numero de teléfono es (800) 495-5651.

Stringfellow Site Mailing List

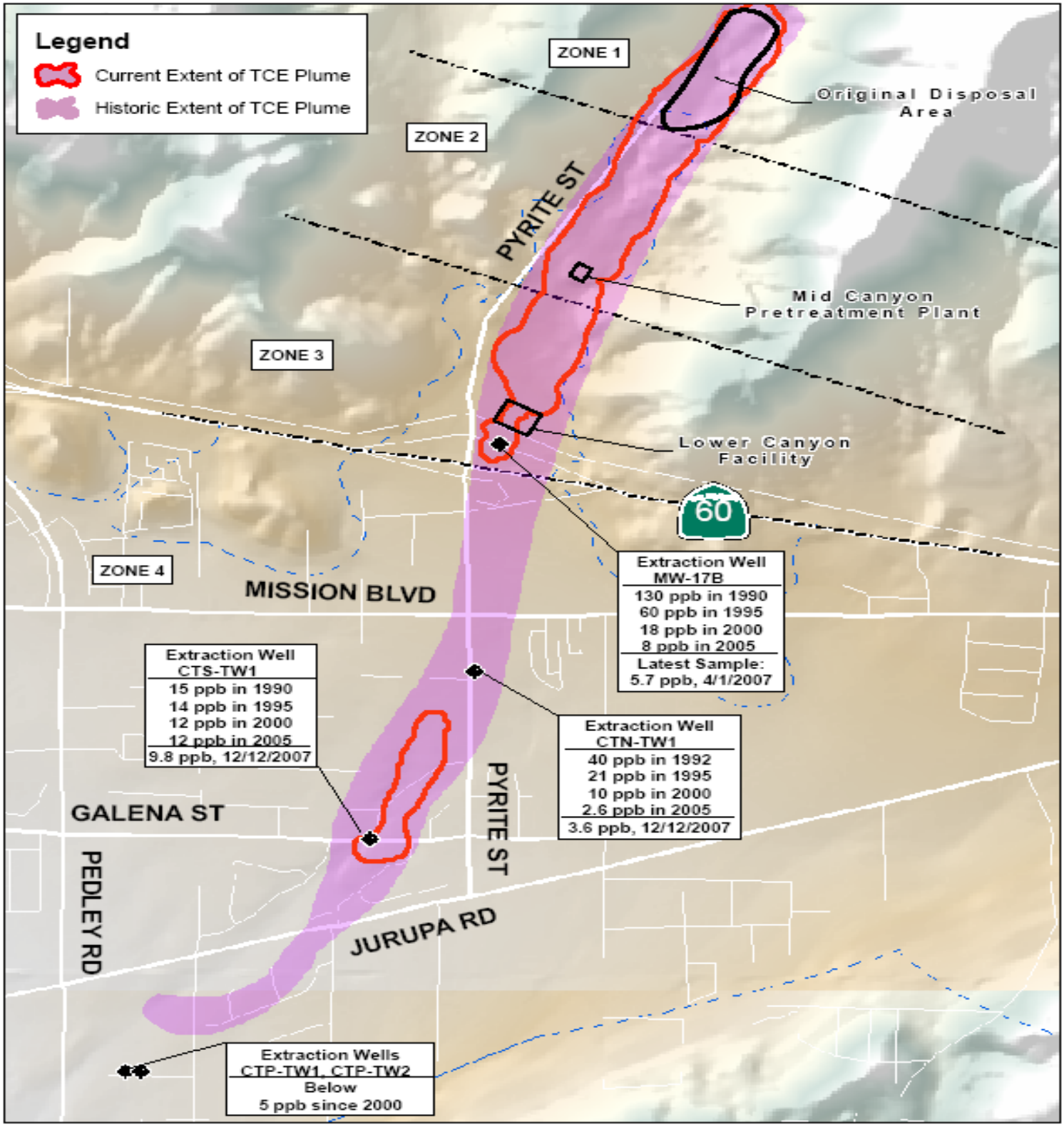
Please add me to the Stringfellow Superfund Site mailing list. DTSC mailing lists are solely for the purpose of keeping persons informed of DTSC activities. Mailing lists are not routinely released to outside parties. However, they are considered public records and, if requested, may be subject to release.

Name:

Mailing Address:

City: State: Zip:

Representing: Phone number (e mail address)


Legend
Current Extent of TCE Plume
Historic Extent of TCE Plume
ZONE 1
ZONE 2
ZONE 3
ZONE 4
Original Disposal Area
Mid Canyon Pretreatment Plant
Lower Canyon Facility
PYRITE ST
MISSION BLVD
GALENA ST
PEDLEY RD
JURUPA RD
60
Extraction Well MW-17B
130 ppb in 1990
60 ppb in 1995
18 ppb in 2000
8 ppb in 2005
Latest Sample: 5.7 ppb, 4/1/2007
Extraction Well CTS-TW1
15 ppb in 1990
14 ppb in 1995
12 ppb in 2000
12 ppb in 2005
9.8 ppb, 12/12/2007
Extraction Well CTN-TW1
40 ppb in 1992
21 ppb in 1995
10 ppb in 2000
2.6 ppb in 2005
3.6 ppb, 12/12/2007
Extraction Wells CTP-TW1, CTP-TW2
Below 5 ppb since 2000